

Message

**From:** Wirick, Holiday [wirick.holiday@epa.gov]  
**Sent:** 5/13/2020 7:21:49 PM  
**To:** Wirick, Holiday [wirick.holiday@epa.gov]  
**Subject:** Fw: Question from ND re: Ammonia Standard

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**From:** Sengco, Mario <Sengco.Mario@epa.gov>  
**Sent:** Wednesday, May 13, 2020 12:20 PM  
**To:** Wirick, Holiday <wirick.holiday@epa.gov>  
**Subject:** FW: Question from ND re: Ammonia Standard

Hi, Holly

Here is some additional input from Lars based on Pete's response.

Mario

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**From:** Wilcut, Lars <Wilcut.Lars@epa.gov>  
**Sent:** Wednesday, May 13, 2020 10:27 AM  
**To:** Fleisig, Erica <Fleisig.Erica@epa.gov>; Sengco, Mario <Sengco.Mario@epa.gov>  
**Subject:** RE: Question from ND re: Ammonia Standard

Given what I understand North Dakota is looking to do, I recommend they put these equations into their WQS:

- For CMC, both the mussels/*Oncorhynchus*-present equation they already have in there, and also the *Oncorhynchus*-absent equation on page 42. Note the equation is missing brackets (corrected version below:

[ ]

$$CMC = 0.7249 \times \frac{0.0114}{1 + 10^{7.204 - pH}} + \frac{1.6181}{1 + 10^{pH - 7.204}} \times MIN(51.93, 23.12 \times 10^{0.036 \times (20 - T)})$$

- For CCC, the only driver is mussels, so it's a matter of determining the presence/absence of mussels. Given that the state determined they are ubiquitous I'm assuming they don't want to bother with any additional equations here. If they do, Appendix N of the criteria document has the applicable equations.
- In my earlier email I said that the issue is rainbow trout, but it's actually all the species in the genus *Oncorhynchus*.
- As an alternative to the equations, or as a supplement to them, the state could adopt the applicable tables (Tables 5a, 5b, 6) showing the criteria magnitude values from given pH and temperatures.

- It would lessen the chance of litigation, promote transparency, and ensure regulatory certainty to clearly describe the circumstances that would determine which equation is used in any given situation. That could include any required interaction with the state authority making decisions, the level and type of information expected, etc. We have two internal documents that may be helpful to Holly: one describes potential ammonia criteria approaches, including what information we would expect to accompany the submission; the other is a decision tree to help regional staff understand when to choose the various equations.

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Mario R. Sengco, Ph.D.  
Physical Scientist  
Region 8 WQS Liaison

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